

CLAIMS

What is claimed is:

- 1 1. A method for selectively collecting information from a plurality of
2 logical segments in a computing environment, the method comprising:
3 controllably designating one of a plurality of information storage
4 modes, wherein each of the information storage modes identifies a different set of
5 information from the plurality of logical segments to be stored;
6 controllably designating at least one of a plurality of data collection
7 periods defining temporal windows in which storage of the designated set of
8 information is enabled; and
9 storing the designated set of information identified by the designated
10 information storage mode only during the designated data collection period.
- 1 2. The method of Claim 1, further comprising controllably designating
2 an information retrieval mode, wherein retrieval of the stored set of information is
3 enabled in response thereto.
- 1 3. The method of Claim 2, wherein controllably designating an
2 information retrieval mode comprises substituting the designation of the
3 information storage mode with the designation of the information retrieval mode.
- 1 4. The method of Claim 1, wherein controllably designating at least one
2 of a plurality of data collection periods comprises controllably designating a data
3 collection commencement event, wherein the data collection period commences
4 upon recognition of the data collection commencement event.

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1 5. The method of Claim 1, wherein controllably designating at least one
2 of a plurality of data collection periods comprises controllably designating a data
3 collection termination event, wherein the data collection period terminates upon
4 recognition of the data collection termination event.

1 6. The method of Claim 1, further comprising dynamically reconfiguring
2 the information storage modes to designate a different set of information from a
3 different one of the plurality of logical segments to be stored.

1 7. The method of Claim 1, further comprising dynamically reconfiguring
2 the data collection periods to designate a different temporal window in which
3 storage of the designated set of information is enabled.

1 8. The method of Claim 1:
2 wherein controllably designating at least one of a plurality of data
3 collection periods comprises controllably designating a data collection
4 commencement event, wherein the data collection period commences upon
5 recognition of the data collection commencement event;
6 wherein controllably designating at least one of a plurality of data
7 collection periods comprises controllably designating a data collection termination
8 event, wherein the data collection period terminates upon recognition of the data
9 collection termination event; and
10 further comprising reconfiguring the data collection periods by
11 dynamically reconfiguring at least one of the data collection event and the data
12 termination event.

1 9. A system for selectively collecting information in a computing
2 environment having a plurality of functional modules, wherein each functional
3 module is associated with time-varying operational information as each functional
4 module operates, and wherein analysis of the operational information may be

5 used to identify operational defects in the computing environment, the system
6 comprising:

7 a memory for storing the operational information associated with the
8 functional modules;

9 a dynamically-configurable write mode selection module coupled to
10 a control interface to receive one of a plurality of selectable write mode identifiers,
11 and to enable selected subsets of the operational information to be stored in the
12 memory in response to the received write mode identifier; and

13 a dynamically-configurable timing control module coupled to the
14 control interface to receive one of a plurality of collection initiation identifiers and
15 one of a plurality of collection termination identifiers, to enable storing of the
16 selected subset of operational information into the memory upon activation of an
17 initiation event corresponding to the received collection initiation identifier, and to
18 terminate storing of the selected subset of operational information into the
19 memory upon activation of a termination event corresponding to the received
20 collection termination identifier.

1 10. The system as in Claim 9, wherein the dynamically-configurable
2 write mode selection module comprises a write mode scan register that is loaded
3 via a dynamic scan operation.

1 11. The system as in Claim 9, wherein the dynamically-configurable
2 timing control module comprises a timing control scan register that is loaded via a
3 dynamic scan operation.

1 12. The system as in Claim 9, wherein the dynamically-configurable
2 write mode selection module further comprises means for enabling the selected
3 subset of the operational information to be stored in the memory if the subset of
4 operational information changes from a first defined time to a second defined
5 time, in response to a corresponding write mode selection identifier.

1 13. The system as in Claim 9, wherein the dynamically-configurable
2 write mode selection module further comprises means for enabling the selected
3 subset of the operational information to be stored in the memory, if a current
4 function value within the selected subset of operational information matches a
5 predetermined function value, and if a current address value within the selected
6 subset of operational information matches a predetermined address value, in
7 response to a corresponding write mode selection identifier.

1 14. The system as in Claim 9, wherein the dynamically-configurable
2 write mode selection module further comprises means for enabling the selected
3 subset of the operational information to be stored in the memory if the subset of
4 operational information is received from a predetermined one or more of the
5 functional modules.

1 15. The system as in Claim 9, wherein the dynamically-configurable
2 timing control module comprises a dynamically-scannable register coupled to the
3 control interface to receive and store the collection initiation identifiers and the
4 collection termination identifiers, wherein the dynamically-scannable register
5 includes a plurality of outputs to provide capture enable/disable signals to enable
6 storing of the selected subset of operational information into the memory upon
7 activation of an initiation event corresponding to the collection initiation identifier,
8 and to terminate storing of the selected subset of operational information into the
9 memory upon activation of a termination event corresponding to the collection
10 termination identifier.

1 16. The system as in Claim 9, further comprising:
2 a data interface coupled to receive the operational information from
3 the functional modules; and

4 a multiplexing module coupled to the data interface to exclude the
5 operational information external to the selected subset of operational information
6 identified by the selectable write mode identifiers.

1 17. The system as in Claim 16, further comprising a write data register
2 coupled to the multiplexing module to receive and store the selected subset of
3 operational information.

1 18. The system as in Claim 9, further comprising a dynamically-
2 configurable read mode selection module coupled to the control interface to
3 receive a selectable read mode identifier, and to enable the selected subset of
4 operational information stored in the memory to be accessed.

1 19. The system as in Claim 18, further comprising a dynamically-
2 configurable read data register coupled to the memory to receive and temporarily
3 store the selected subset of operational information in response to the selectable
4 read mode identifier.

1 20. The system as in Claim 19, further comprising:
2 a data interface coupled to receive the operational information from
3 the functional modules;
4 a multiplexing module coupled to the data interface to exclude the
5 operational information external to the selected subset of operational information
6 identified by the selectable write mode identifiers;
7 a write data register coupled to the multiplexing module to receive
8 and store the selected subset of operational information; and
9 a second multiplexing module coupled between the memory and the
10 dynamically-configurable read data register to selectively allow the selected
11 subset of information from the write data register or from the memory to be
12 transmitted to the dynamically-configurable read data register.

1 21. The system as in Claim 19, wherein the dynamically-configurable
2 read data register is read via a dynamic scan operation.

1 22. The system as in Claim 18, wherein the dynamically-configurable
2 read mode selection module comprises a read mode scan register that is loaded
3 via a dynamic scan operation.

1 23. The system as in Claim 9, wherein the computing environment is an
2 integrated circuit, and wherein at least one of the plurality of functional modules
3 are predetermined logical sections of the integrated circuit.

1 24. The system as in Claim 23, wherein at least one of the plurality of
2 functional modules are external to the integrated circuit.

1 25. A method for selectively collecting information from a plurality of
2 functional modules in a computing environment, the method comprising:
3 designating one of a plurality of information storage modes, wherein
4 each of the information storage modes identifies a different set of information from
5 the plurality of functional modules to be stored;

6 designating one of a plurality of storage commencement events,
7 wherein each of the storage commencement events identifies a different triggering
8 event to enable storage of the designated set of information to begin;

9 designating one of a plurality of storage termination events, wherein
10 each of the storage termination events identifies a different triggering event to
11 discontinue storage of the designated set of information;

12 monitoring for activation of the designated storage commencement
13 event;

14 enabling storage of the designated set of information, as governed
15 by the designated information storage mode, upon recognition of the activation of
16 the designated storage commencement event;

17 monitoring for activation of the designated storage termination event;
18 and
19 disabling storage of the designated set of information upon
20 recognition of the activation of the designated storage termination event.

1 26. The method of Claim 25, wherein enabling storage of the designated
2 set of information comprises storing the designated set of information in a
3 memory, and wherein the method further comprises retrieving the set of
4 information stored in the memory.

1 27. The method of Claim 26, further comprising reconfiguring the
2 designated information storage mode to designate an information retrieval mode,
3 and wherein retrieving the set of information comprises retrieving the set of
4 information from the memory in response to the designation of the information
5 retrieval mode.

1 28. The method of Claim 27, wherein reconfiguring the designated
2 information storage mode comprises dynamically scanning a retrieval mode
3 identification into a scan register to designate the information retrieval mode.

1 29. The method of Claim 25, further comprising reconfiguring the
2 designated information storage mode to designate another one of the plurality of
3 information storage modes.

1 30. The method of Claim 29, wherein reconfiguring the designated
2 information storage mode comprises dynamically scanning a storage mode
3 identification into a scan register to designate the information storage mode.

1 31. The method of Claim 25, further comprising reconfiguring the
2 designated storage commencement event to designate another one of the
3 plurality of storage commencement events.

1 32. The method of Claim 31, wherein reconfiguring the designated
2 storage commencement event comprises dynamically scanning a storage
3 commencement identification into a scan register to designate the storage
4 commencement event.

1 33. The method of Claim 25, further comprising reconfiguring the
2 designated storage termination event to designate another one of the plurality of
3 storage termination events.

1 34. The method of Claim 33, wherein reconfiguring the designated
2 storage termination event comprises dynamically scanning a storage termination
3 identification into a scan register to designate the storage termination event.